

## POLYTECHNIC OF MEÐIMURJE IN ČAKOVEC

COURSE SYLLABUS												
	)22/2023											
<b>1. GENERAL COURSE INFO</b>	RMA	TION										
1.1 Course name	Ob	oject oriente	d p	rogramm	ing II							
1.2 Study program/s	Un	ndergraduate	e pro	ofessiona	l study	y ir	n Computei	r Scie	ence			
1.3 Course status (O,E)	Ob	oligatory			1.6 Mode of			Lectures 30				
1.4 Course code					i	inst	ruction	Exe	xercises 30			
1.5 Course abbreviation	00	(	(nu	mber of	Sem	ninars						
1.6 Semester	5				ł	hou	ırs)	E-learning				
1.7 ECTS	5	1.7 P	lac	e and	The	ytechnic of						
		t	tim	e of	Medjimurje in Cakovec,							
			i	nst	ruction	according to schedule						
							pub	lished on	we	b pa	ages	
2. TEACHING STAFF	1											
2.1 Course leader/s-title	Ph	D. Bruno	Tr	stenjak,	conta	act		btrs	<u>tenjak@r</u>	nev	.hr	
	se	nior lecturer										
					conta	act						
2.2 Assistant/s- title					conta	act						
					conta	act						
2.3 Instruction held by-	Ph	D. Bruno	Tr	stenjak,	conta	act						
	se	nior lecturer										
3. COURSE DESCRIPTION	<u>م</u> د			<b>.</b>			م ما الاندىن	- 1- 1-		م ما خ	1	e u de dec te
3.1 Course goals		ter completi nato a simple	ng t	ne course	e, the s	do	skton and y		lo appiy	tne dao	ic i	
	the	e field of an	e Ja Inlic	va applic ation of	the ob	viec	t naradigm	webj nani	d the stu	uge don	15 ( t ic	trained to
	inc	denendently	ne	rform nr	oblem	ta	sks in the	field	1 of annl	icat	ion	of object-
	ori	iented progr	amr	ning lang	uages.			nere		icut	.0.11	
3.2 Prerequisites	Pa	ssed courses	5: 0	biect orie	nted p	prog	gramming 1	1. Pr	ogrammi	ng t	ool	s in
	pro	ogramming					5. «	_,	-0	.0.		
3.3 Course outcomes	Af	ter successfu	ully (	completir	ng the	соι	urse, stude	nts v	vill be abl	e to	):	
	01	L - Explain th	, e ba	, sic meth	ods of	cre	eating data	stru	ctures			
	02	2 - Design de	skto	p applica	tions (	usir	ng basic UI	elen	nents			
	03	B - Explain th	e cla	ass to wo	rk witł	h 21	D graphics					
	04	l - Design we	eb se	ervices ar	nd CRU	JD r	methods					
	05	5 - Design a F	REST	service i	n a Clo	bud	environme	ent				
	06	5 - Independe	entl	y create a	a web a	app	olication ac	cord	ling to the	e giv	/en	problem
		task										
3.4 Course content	Th	e course wi	ll co	ontain co	ntent	rela	ated to the	e cre	ation of	des	kto	p and web
	ар	plications b	ase	d on the	e Java	pr	ogrammin	g laı	nguage.	The	со	ntents are
	pro	ocessed fro	m t	he aspe	ct of	pro	ogramming	and	d applica	tior	0	f the Java
	pro	ogramming l	ang	uage. The	e teach	ning	g units pres	sent	contents	rela	tec	to project
	cre	eation, defi	ning	classes	, crea	itin	g UI inte	rtace	es, creat	ing	se	rvices and
	re	positories to	or d	atabase a	access,	, d	evelopmen	t of	CRUD m	eth	ods	and REST
	se	ivices in the		ua enviro	mment	ί.	Blandeda		Individual			
5.5 Types of coursework	Х	Lectures	Х	Exercises			learning	Х	activities			Laboratory

		Semina and worksh	rs ops	x	Distant learnin	g		Field classes		Multim and networ	iedia .k		Mentorship
		Other	000							networ	ĸ		L
3.6 Language of instruction				<u> </u>									
3.7 Monitoring students'	2,0	Clas	s atte	ndan	ce		Se	minars			Essa	у	
number of ECTS		Clas	Class activity			1,0	Pro	oject		Repo	aper		
credits for each	1,0	Mid	term	exam	S		Pra	actical task			Cont knov	tinuc vled	ous ge check
total number of ECTS		Writ	ten e	xam			Ex	perimental wo	ork				
credits is equal to	1,0 Oral exam			R			Re	search					
of the course, 1 ECTS													
= 30 hours)	<u> </u>												
3.8 Assessment and			Δc	tivity	/ snecific	ation		Percent %	6	Po	nints		
evaluation of			Activity specification Assessment of				luring instruct	1 01110					
during classes and at		At	tenda	ince				5%			5		
the final exam		Pr	oject idtorr	n ova	m 1			40%			40 1 E		
	l	M	idterr	n exa	m 2			15%			15		
	l	0	al exa	am				25%		25			
		Ex	am as	ssess	ment for	the stud	dents	s who failed to	fullfil	all the obligatory			
	l				rec	quireme	nts d	uring the sem	ester				
	l		ritten tal:	exar	n			30%		30			
			- can					200/0	100				
3.9 Assessment criteria –													
3.9 Assessment criteria – analysis per learning					Wa	ys of ev Mid-te	aluat	ting learning o	outcom	nes	Ora	1	
3.9 Assessment criteria – analysis per learning outcomes			A	tten	Wa dance	ys of ev Mid-te exam	aluat rm 1	ting learning o Mid-term exam 2	outcom Prac We	nes ctical ork	Ora exar	l n	Total
3.9 Assessment criteria – analysis per learning outcomes	01	utcome	<u>р</u>	tten	Wa dance	ys of ev Mid-te exam 5	aluat rm 1	ting learning o Mid-term exam 2	Prac Prac	nes ctical ork	Ora exar 5	l n	Total
3.9 Assessment criteria – analysis per learning outcomes		utcome	1	tten	Wa dance	ys of ev Mid-te exam 5 5	aluat rm 1	ting learning o Mid-term exam 2	Prac Prac	nes ctical ork 5 5	Ora exar 5 5	l n	<b>Total</b> 15 15
3.9 Assessment criteria – analysis per learning outcomes		utcome utcome utcome	A 1. 2. 3. 4.	tten	Wa dance	ys of ev Mid-te exam 5 5 5	aluat rm 1	ting learning o Mid-term exam 2	Prac Prac We	nes ctical ork 5 5 5 5 5	<b>Ora</b> exar 5 5 5 5 5	l n	<b>Total</b> 15 15 15 15
3.9 Assessment criteria – analysis per learning outcomes		utcome utcome utcome utcome	A 1	tten	Wa dance	ys of ev Mid-te exam 5 5 5	aluat rm 1	ting learning of Mid-term exam 2 5 5	Prac Wei	nes ctical ork 5 5 5 5 5 .0	<b>Ora</b> <b>exar</b> 5 5 5 5 5 5	l n	<b>Total</b> 15 15 15 15 15 20
3.9 Assessment criteria – analysis per learning outcomes		utcome utcome utcome utcome utcome utcome	L 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	tten	Wa dance	ys of eva Mid-te exam 5 5 5	aluat rm 1	ting learning of Mid-term exam 2 5 5 5 5	Prac Wo	nes ctical ork 5 5 5 5 .0 .0	<b>Ora</b> exar 5 5 5 5 5	l n	<b>Total</b> 15 15 15 15 20 15
3.9 Assessment criteria – analysis per learning outcomes		utcome utcome utcome utcome utcome utcome	A 1 2 3 4 5 5	tten	Wa dance	ys of eva Mid-te exam 5 5 5	aluat rm 1	ting learning of Mid-term exam 2 5 5 5 5	Prac Wi	nes tical ork 5 5 5 5 .0 .0 .0	<b>Ora</b> exar 5 5 5 5 5	l n	Total 15 15 15 15 20 15 5
3.9 Assessment criteria – analysis per learning outcomes		utcome utcome utcome utcome utcome utcome utcome utcome utcome	L 2 2 3 4 5 5 d	tten	Wa dance	ys of eva Mid-te exam 5 5 5	aluat rm 1	ting learning of Mid-term exam 2 5 5 5 5	Prac Wei	nes ctical ork 5 5 5 5 .0 .0 .0 .0 .0 .0	0ra exar 5 5 5 5 5	I n	Total 15 15 15 15 20 15 5 100
3.9 Assessment criteria – analysis per learning outcomes		utcome utcome utcome utcome utcome utcome ot-relate otal	A 1 2 3 3 4 5 5 5 4 4 5 5 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7		Wa dance	ys of eva Mid-te exam 5 5 5 5 2 5 2 5 2 5	aluat rm 1	ting learning of Mid-term exam 2 5 5 5 5 15 2 15 ass the mid-	Prac Windowski	nes ctical ork 5 5 5 6 0 0 0 0 0	Ora exar 5 5 5 5 25 25 (exam	I m	Total 15 15 15 20 15 5 100 e student
3.9 Assessment criteria – analysis per learning outcomes		utcome utcome utcome utcome utcome utcome ot-relate ot-relate otaling o st achi	A 1 2 3 4 5 5 6 4 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	atten	Wa dance	ys of eva Mid-te exam 5 5 5 5 5 5 5 5 5 5 5 0 7 5	aluat rm 1 0 pa	ting learning of Mid-term exam 2 5 5 5 5 15 ass the mid- r each learn	Prac Wi 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	nes tical ork 5 5 5 5 0 0 0 0 exam/ utcom	Ora exar 5 5 5 5 5 7 25 (exam e)	I n	Total       15       15       15       20       15       5       100       2 student
3.9 Assessment criteria – analysis per learning outcomes	Ou Ou Ou Ou Ou Ou Ou Ou Ou Ou Ou Ou Ou O	utcome utcome utcome utcome utcome utcome ot-relate ot-relate ot-relate ot-relate ot-relate nts	A 1 2 3 4 5 6 6 6 6 6 6 6 6 6 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7	tten <u>s</u> com at le de	Wa dance	ys of eva Mid-te exam 5 5 5 5 5 15 0rder t 6 point	aluat rm 1 0 pa s fo	ting learning of Mid-term exam 2 5 5 5 5 15 ass the mid- r each learn	Pracework Weights	nes ctical ork 5 5 5 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	Ora exar 5 5 5 5 25 (exam e)	I m	Total       15       15       15       20       15       5       100       2 student
3.9 Assessment criteria – analysis per learning outcomes	Ou Ou Ou Ou Ou Ou Ou Ou Ou Ou Ou Ou Ou O	utcome utcome utcome utcome utcome utcome trelate	A 1 2 3 4 5 5 6 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7	tten scom at le eller	Wa dance	ys of eva Mid-te exam 5 5 5 5 5 5 5 5 5 5 0 7 0 7 5 7 5 7 5 7	aluat rm 1 o pa s fo	ting learning of Mid-term exam 2 5 5 5 5 <b>15</b> ass the mid- r each learn	Prac Wei 1 1 1 1 4 term ning o	nes ctical ork 5 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ora exar 5 5 5 5 25 (exam e)	I n	Total 15 15 15 20 15 5 <b>100</b> e student
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3.9 Assessment criteria – analysis per learning outcomes	01 01 01 01 01 01 01 01 01 01 01 01 01 0	utcome utcome utcome utcome utcome utcome trelate trelate tal ading o st achi nts – 100 – 88 – 75	A 1 2 3 4 5 5 6 4 6 7 7 7 7 7 7 7 7 7 7 7 7 7	tten tten teller de eller y go d (3	Wa dance	ys of ev Mid-te exam 5 5 5 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7	aluat rm 1 0 pa s fo	ting learning of Mid-term exam 2 5 5 5 5 15 ass the mid- r each learn	Pracework Weights	nes ctical ork 5 5 5 0 0 0 0 exam/ utcom	Ora exar 5 5 5 5 (exam e)	I n	Total 15 15 15 20 15 5 100 e student
3.9 Assessment criteria – analysis per learning outcomes	01 01 01 01 01 01 01 01 01 01 01 01 01 0	utcome utcome utcome utcome utcome utcome ot-relate ot-relate otaling o st achi nts – 100 – 88 – 75 – 62	A 1 2 3 4 5 5 5 6 4 6 7 7 7 7 7 7 7 7 7 7 7 7 7	tten	Wa dance	ys of eva Mid-te exam 5 5 5 5 5 0 15 0 rder t 6 point	aluat rm 1 o pa s fo	ting learning of Mid-term exam 2 5 5 5 5 <b>15</b> ass the mid- r each learn	Prac Wei 1 1 1 1 4 term	nes ctical ork 5 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ora exar 5 5 5 5 (exam e)	I m	Total 15 15 15 20 15 5 100 e student
3.9 Assessment criteria – analysis per learning outcomes	01 01 01 01 01 01 01 01 01 01 01 01 01 0	utcome utcome utcome utcome utcome utcome utcome utcome tal ading o ist achi nts – 100 – 88 – 75 – 62 – 49	A 1 2 3 4 5 5 6 4 6 7 7 7 7 7 7 7 7 7 7 7 7 7	tten tten com at le de eller y gou d (3 s (2) (1)	Wa dance	ys of eva Mid-te exam 5 5 5 5 5 0 15 0 rder t % point	aluat rm 1	ting learning of Mid-term exam 2 5 5 5 5 15 ass the mid- r each learn	Prac we	nes tical ork 5 5 5 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	Ora exar 5 5 5 5 25 (exam e)	I m	Total 15 15 15 20 15 5 <b>100</b> e student
3.9 Assessment criteria – analysis per learning outcomes 3.10 Specific features	01 01 01 01 01 01 01 01 01 01 01 01 01 0	utcome utcome utcome utcome utcome utcome utcome utcome ot-relate tal ading o st achi nts – 100 – 88 – 75 – 62 – 49 stude	f out f out goo pas fail nt co	tten ten ten ten ten ten ten ten	Wa dance dance s is nes (in c ast 50% nt (5) od (4) )	ys of ev Mid-te exam 5 5 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	aluat rm 1 o pa s fo	ting learning of Mid-term exam 2 5 5 5 5 15 ass the mid- r each learn nts of each of	Prace Weinson	nes ctical ork 5 5 5 0 0 0 exam/ utcom	Ora exar 5 5 5 25 (exam e)	I m	Total 15 15 15 20 15 5 100 e student rectly takes
3.9 Assessment criteria – analysis per learning outcomes 3.10 Specific features related with taking	01 01 01 01 01 01 01 01 01 01 01 01 01 0	utcome utcome utcome utcome utcome utcome ot-relate ot-relate otaling o st achi nts – 100 – 88 – 75 – 62 – 49 stude e exam	A 1 2 3 4 5 5 5 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7	stten	Wa dance dance s s s s s s s s s s s s s s s s s s s	ys of eva Mid-te exam 5 5 5 5 0 15 0 rder t 6 point	aluat rm 1 o pa s fo	ting learning of Mid-term exam 2 5 5 5 5 15 ass the mid- r each learn nts of each of a seminar	Prace Weight of the second sec	nes ctical ork 5 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ora exar 5 5 5 25 (exam e)	I m	Total         15         15         15         20         15         5         100         e student
3.9 Assessment criteria – analysis per learning outcomes 3.10 Specific features related with taking the course	Oi Oi Oi Oi Oi Oi Oi Oi Oi Oi Oi Oi Oi O	utcome utcome utcome utcome utcome utcome utcome utcome trelate ot-relate ot	A 1 2 3 4 5 5 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7	atten stten scom at le de eller y gou d (3 s (2) (1) llect e / s e / s	Wa dance dance 5 5 5 6 5 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7	ys of eva Mid-te exam 5 5 5 5 7 5 7 7 7 7 7 7 7 7 7 7 7 7 7	aluat rm 1 o pa s fo	ting learning of Mid-term exam 2 5 5 5 15 ass the mid- r each learn ts of each of a seminar itted a seminar	Prace Weiling of the second se	nes tical ork 5 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0	Ora exar 5 5 5 25 (exam e)	I m	Total 15 15 15 20 15 5 100 e student rectly takes not access papers are
3.9 Assessment criteria – analysis per learning outcomes 3.10 Specific features related with taking the course	Ou Ou Ou Ou Ou Ou Ou Ou Ou Ou Ou Ou Ou O	utcome utcome utcome utcome utcome utcome utcome utcome trelate tal ading o st achi nts – 100 – 88 – 75 – 62 – 49 stude e exam e exam e pared	f out a constant f out f out goo pas fail nt co if he acco	stten stten scom at le de eller y go d (3 s (2) (1) llect e / s r din	Wa dance dance	ys of ev Mid-te exam 5 5 5 5 0 15 0 rder t 6 point 6 point 6 point 8 ubmi not su e instru	aluat rm 1 o pa s fo	ting learning of Mid-term exam 2 5 5 5 15 15 ass the mid- r each learn nts of each of a seminar itted a seminar	outcom Prace we 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	nes ctical ork 5 5 0 0 0 0 exam/ utcom me, he r. A stu paper. the M	Ora exar 5 5 5 25 (exam e)	e din car nar syst	Total 15 15 15 20 15 5 100 e student rectly takes not access papers are em and are
3.9 Assessment criteria – analysis per learning outcomes 3.10 Specific features related with taking the course	Oi Oi Oi Oi Oi Oi Oi Oi Oi Oi Oi Oi Oi O	utcome utcome utcome utcome utcome utcome utcome utcome ot-relate ot ading o sst achi nts – 100 – 88 – 75 – 62 – 49 stude e exam e pared omitteo	f out goo pas fail if he acco	atten	Wa dance dance s s s s s s s s s s s s s s s s s s s	ys of eva Mid-te exam 5 5 5 5 0 15 0 rder t 6 point 6 point 6 point 15 0 rder t 6 point 15 0 rder t 15 0 rder t 15 0 rder t 15 0 15 0 15 0 15 0 15 0 15 0 15 0 15	aluat rm 1 o pa s fo	ting learning of Mid-term exam 2 5 5 5 15 15 ass the mid- r each learn its of each of a seminar itted a seminar itted a seminar	outcom Prace we 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	mes tical ork 5 5 5 0 0 0 0 exam/ utcom me, he r. A stu paper. the M per sho	Ora exar 5 5 5 25 (exam e) e / she udent Semi erlin s puld b	e din car nar syst	Total 15 15 15 20 15 5 100 e student rectly takes not access papers are em and are Jbmitted at

3.11 Students obligations	Full-time students are required to attend at least 70% of the total number of hours of lectures and exercises in order to exercise the right to take the exam. Part-time students are required to attend at least 30% of the total number of hours of lectures and exercises in order to exercise the right to take the exam. If the student has not fulfilled all the obligations set by the course, he is obliged to attend the lectures again and meet the conditions for taking the exam. Attendance can be offset by online tuition, organised webinars and added					
	Attendance can be offset by online tuition, organised webinars and added assignments given by teachers. One lesson lasts 45 minutes, and several hours form a teaching unit. Absence from one teaching unit is counted as one absence. Delays and apologies are recorded separately. In that case, if the student missed more than 50% of classes, and has a justifiable reason/apology, the request should be submitted to the Department Council, which then decides on the justification of student absences with the obligatory opinion of the course leader					
3.12 Written						
assignments	Marc Low Learning Java: An Introduction to Real World Brogramming					
5.15 Required reading	1. with Java, Oreilly 2020.					
	2.					
3.14 Additional reading	<ol> <li>Nick Samoylov: Learn Java 12 Programming: A step-by-step guide to</li> <li>learning essential concepts in Java SE 10, 11, and 12 ,Packt Publishing, 2019.</li> </ol>					
	2. Craig Walls: Spring in Action, Manning Publications, 2018.					
4 ADDITIONAL COURSE INF	ORMATION					
4 ADDITIONAL COURSE INF 4.1 Quality control	ORMATION The quality of the program, teaching process, teaching skills and level of mastery of the material will be established by conducting a written evaluation based on questionnaires, and in other standardised ways and in accordance with the by-laws of the Polytechnic of Međimurje in Čakovec.					
4 ADDITIONAL COURSE INF 4.1 Quality control 4.2 Contact the teacher	ORMATION         The quality of the program, teaching process, teaching skills and level of mastery of the material will be established by conducting a written evaluation based on questionnaires, and in other standardised ways and in accordance with the by-laws of the Polytechnic of Međimurje in Čakovec.         Students can contact the teacher during the office hours and during classes, while for short questions and explanations they can contact him/her any day during working hours by coming in person or by landline. It is also possible to ask questions by e-mail, which will be answered in 48 hours at the latest. It is desirable for students to come as often as possible for any possible questions during the teacher's office hours.					
4 ADDITIONAL COURSE INF 4.1 Quality control 4.2 Contact the teacher 4.3 Information about	ORMATIONThe quality of the program, teaching process, teaching skills and level of mastery of the material will be established by conducting a written evaluation based on questionnaires, and in other standardised ways and in accordance with the by-laws of the Polytechnic of Međimurje in Čakovec.Students can contact the teacher during the office hours and during classes, while for short questions and explanations they can contact him/her any day during working hours by coming in person or by landline. It is also possible to ask questions by e-mail, which will be answered in 48 hours at the latest. It is desirable for students to come as often as possible for any possible questions during the teacher's office hours.It is the obligation of each student to be regularly informed about the course.					
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<ul> <li>4 ADDITIONAL COURSE INF</li> <li>4.1 Quality control</li> <li>4.2 Contact the teacher</li> <li>4.3 Information about the course</li> <li>4 4 Course contribution</li> </ul>	ORMATION         The quality of the program, teaching process, teaching skills and level of mastery of the material will be established by conducting a written evaluation based on questionnaires, and in other standardised ways and in accordance with the by-laws of the Polytechnic of Međimurje in Čakovec.         Students can contact the teacher during the office hours and during classes, while for short questions and explanations they can contact him/her any day during working hours by coming in person or by landline. It is also possible to ask questions by e-mail, which will be answered in 48 hours at the latest. It is desirable for students to come as often as possible for any possible questions during the teacher's office hours.         It is the obligation of each student to be regularly informed about the course. All notifications about the classes or possible postponement of classes will be posted on the bulletin board and on the website of the Polytechnic at least 24 hours in advance.					
<ul> <li>4 ADDITIONAL COURSE INF</li> <li>4.1 Quality control</li> <li>4.2 Contact the teacher</li> <li>4.3 Information about the course</li> <li>4.4 Course contribution to the study</li> </ul>	ORMATION         The quality of the program, teaching process, teaching skills and level of mastery of the material will be established by conducting a written evaluation based on questionnaires, and in other standardised ways and in accordance with the by-laws of the Polytechnic of Međimurje in Čakovec.         Students can contact the teacher during the office hours and during classes, while for short questions and explanations they can contact him/her any day during working hours by coming in person or by landline. It is also possible to ask questions by e-mail, which will be answered in 48 hours at the latest. It is desirable for students to come as often as possible for any possible questions during the teacher's office hours.         It is the obligation of each student to be regularly informed about the course. All notifications about the classes or possible postponement of classes will be posted on the bulletin board and on the website of the Polytechnic at least 24 hours in advance.         - Work in a team, manage professional projects and cooperate with experts from the real sector					
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